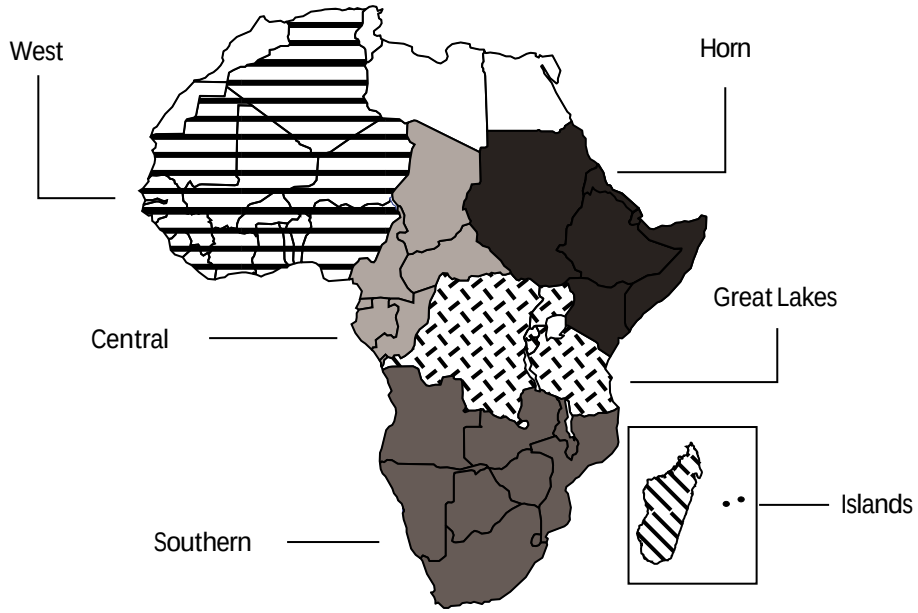
Epidemic Preparedness and Response in Africa:

An Epidemiological Block Approach

SUMMARY REPORT

AFRO/EMC Epidemiological Blocks



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Acronyms and Abbreviations

AFR/SD	Africa Bureau/Office of Sustainable Development
AFRO	Regional Office for Africa
AMREF	African Medical and Research Foundation
CDC	Centers for Disease Control and Prevention
CFR	case fatality rate
DDC	Division of Disease Control
DCP	Disease Control and Prevention Officer
DfID	Department for International Development
EMC	Emerging and other Communicable Diseases Surveillance and Control Program
EPI	Expanded Program on Immunization
EPR	emergency preparedness and response
EU	European Union
GLB	Great Lakes Block
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
ICP	inter-country program
IDS	integrated disease surveillance
MOH	Ministry of Health
RC48	48th Regional Committee
SARA	Support for Analysis and Research in Africa Project
SDR	Swiss Disaster Relief
STP	short-term technical professional
USAID	United States Agency for International Development
VHF	viral hemorrhagic fever
WAB	West Africa Block
WHO/AFRO	World Health Organization/Regional Office for Africa
WHO/EMC	World Health Organization/Emerging and other Communicable Diseases Surveillance and Control Program
WHO/HQ	World Health Organization/Headquarters

Executive Summary

Following a series of epidemics that occurred in 1995 and 1996 in several countries in West and Central Africa, the World Health Organization (WHO) Regional Office for Africa (AFRO) and the USAID Africa Bureau, Office of Sustainable Development (AFR/SD), decided to strengthen their cooperation on epidemic preparedness and response (EPR) throughout the continent. Many African countries lack drugs and other supplies for prompt and effective interventions to address epidemic outbreaks. Many country officials lack both awareness of the risk of epidemics and the capacity to effectively detect and manage them. In order to improve the situation, WHO/AFRO defined five groups of countries with similar epidemiological profiles, and created a political framework to facilitate inter-country collaboration within each of these epidemiological blocks. The Swiss Disaster Relief (SDR), the European Union (EU), and the U.S. Centers for Disease Control and Prevention (CDC) also joined the effort to strengthen capacity for EPR in West Africa.

Almost four years later, AFRO and AFR/SD decided to organize a review and documentation of the epidemic preparedness and response program. The present summary report contains the findings and recommendations of this review. The report presents the epidemiological block approach used by WHO/AFRO to implement its Emerging and other Communicable Diseases Surveillance and Control (EMC) programs, and discusses the performance of the epidemiological teams in the West Africa Block (WAB) and Great Lakes Block (GLB). It discusses the availability and use of data for assessing trends in the incidence, mortality, and occurrence of outbreaks of epidemic-prone diseases — cholera and meningitis in particular. It concludes with a short discussion and recommendations for further efforts to strengthen capacities for epidemic preparedness and response in the Africa region.

Epidemics can quickly spread across borders, and prompt exchange of information from one country to the other can increase the timeliness and effectiveness of interventions. The WHO/AFRO epidemiological block approach is an effective mechanism for strengthening the capacity for epidemic preparedness and response in countries of the Africa region. The various protocols for cooperation signed by the Ministers of Health and of the Interior of the countries in each epidemiological block provide an essential political framework to implement the program.

In their few years of operations, the EMC teams in WAB and the GLB have provided valuable technical assistance to many countries in EPR. The program is starting to show some results such as:

- timely detection and notification of outbreaks;
- publication on a regular basis of epidemiological bulletins at the sub-regional levels;
- increased availability of vaccines, drugs, and other supplies for quick response to initial cases;
- strengthened laboratory capacity for the confirmation of epidemics.

In the WAB, the EMC team trained biologists of national reference laboratories from eight countries. A number of laboratory technicians have subsequently been trained in ten countries in the WAB. In Uganda, an integrated disease surveillance (IDS) assessment was done in March 2000 followed by the development of a five-year plan of action. The broad in-

volvement of the Ministry of Health (MOH) and the support of the GLB EMC team, the Institute of Public Health, CDC, and WHO made this a landmark event in public health in Uganda. An IDS committee is now in place and ten districts have already been trained on the improved surveillance system.

At least partially as a result of the EMC program, there is an increasing awareness of the feasibility of better control of epidemic-prone diseases and an increasing demand from member states for technical and financial support for EPR activities. African countries are at different stages of epidemic preparedness and response, and given the limited resources currently available for the EMC program and the high expectations from member states, WHO/AFRO needs to increase its advocacy, collaboration, and resource mobilization efforts.

With the understanding that various partners may support the implementation of the EMC program, the reviewers have requested that WHO/AFRO continue its technical leadership role in the region and engage in active resource mobilization for EPR by: 1) improving the contractual arrangements for recruiting and maintaining staff at regional and epidemiological block levels; 2) preparing a strong and specific five-year EPR strategic plan for the Africa region; 3) developing a resource mobilization plan and contacting additional partners and donors; and 4) assisting countries to improve specific aspects of the main EMC strategies, such as laboratory strengthening and better evaluation and documentation of outbreak responses.

The full report is available through the WHO/AFRO office.

A. Background

African countries have continued to experience outbreaks of epidemic-prone diseases such as cholera, dysentery, measles, meningitis, plague, viral hemorrhagic fever, yellow fever, and malaria. In 1993, the World Health Organization Regional Office for Africa (WHO/AFRO) developed a regional strategy for epidemic preparedness and response (EPR), including strengthening epidemiological surveillance, which was adopted as a framework for cooperation by all African member states (AFR/RC43/R7).

In 1996, the worst-ever epidemic of meningitis was reported in Nigeria and vast outbreaks also occurred in Burkina Faso, Chad, Mali, and Niger. The outbreaks in 1996 showed the need for preparedness mechanisms and a coordinated response to future epidemic outbreaks. WHO/AFRO, with support from the U.S. Agency for International Development's Africa Bureau (USAID/AFR/SD) and other partners, launched an initiative to enhance the ability of countries to respond to outbreaks of epidemic-prone diseases. With an initial grant of $1 million in 1996 and subsequent grant amendments totaling $3.5 million in 1999, AFRO strengthened the regional unit of its Emerging and other Communicable Diseases Surveillance and Control (EMC) program, and established inter-country technical support teams in five epidemiological blocks. The European Union (EU), the Swiss Disaster Relief (SDR), and the UK Department for International Development (DfID) have also contributed to the EMC program.

In 1998, the 48th Regional Committee (RC48) adopted Resolution AFR/RC48/R2 on Integrated Disease Surveillance (IDS): A Regional Strategy for Communicable Diseases 1999-2003. This strategy is another effort to improve surveillance of about 18 priority diseases or syndromes, including seven epidemic-prone diseases such as cholera, bacillary dysentery, plague, measles, yellow fever, meningococcal meningitis, and viral hemorrhagic fever (VHF).

The main elements of the strategy include: 1) improving surveillance through assessment of national systems, development of country-specific strategies, and reinforcement of sub-national infrastructures (such as reference laboratories) essential to sustainability; 2) building technical (human resource) capacity to manage and utilize integrated surveillance systems; 3) enhancing training materials and training for appropriate categories of health workers, such as district health officers; 4) identifying and assuring provision of critical supplies, material and financial support for in-country staging, and methods for rapid procurement of additional supplies from outside the country; 5) improving communication systems; 6) improving monitoring and evaluation of surveillance systems and building research capacity through conducting epidemiological and laboratory studies, intervention trials, and operational research.

B. Review of the Epidemic Preparedness and Response Program

In July 2000, WHO/AFRO and AFR/SD decided to organize a review and documentation of the epidemic preparedness and response program in the African region. Dr. Marc Debay of the Johns Hopkins School of Public Health and Dr. Sambe Duale of the Tulane University School of Public Health and Tropical Medicine conducted the review through the USAID-funded Support for Analysis and Research in Africa (SARA) Project.

The following methods were used during the documentation exercise:

- a review of documents and reports obtained from AFR/SD, AFRO/Division of Disease Control (DDC), the two epidemiological block teams in Abidjan and Kampala, and country-level partners;
- meetings and discussions with MOH officials and program managers at the central and district levels, WHO Representatives and selected staff, and other stakeholders in three countries (Côte d'Ivoire, Guinea, and Uganda);
- field visits in Rakai District in Uganda, especially in the sub-district of Kyotera where an upsurge of malaria has been observed, and in Focaderiah in Guinea, where an epidemic dysentery outbreak had just been documented.

The present summary report contains the findings and recommendations of this review. The report presents the epidemiological block approach used by WHO/AFRO to implement its EMC programs and discusses the performance of the epidemiological teams in the WAB and GLB. It discusses the availability and use of data for assessing trends in the incidence, mortality, and occurrence of outbreaks of epidemic-prone diseases, and of cholera and meningitis in particular. It concludes with a short discussion and recommendations for further efforts to strengthen capacities for epidemic preparedness and response in the Africa region.

C. Rationale for the Epidemiological Block Approach

The Africa region comprises 49 member states and about 663 million inhabitants. WHO/AFRO has created inter-country program (ICP) technical teams to maintain adequate technical support to all the country offices and member states. These teams assist the regional office through more direct and frequent contacts with a smaller number of country offices. Inter-country teams were first assigned to the Expanded Program on Immunization (EPI), and then to other programs such as malaria, reproductive health, HIV/AIDS, and EMC.

Specific challenges to epidemic preparedness and response in the Africa region amply justify establishing sub-regional inter-country teams for the EMC program:

- Communicable disease epidemiology varies widely within the Africa region, yet similarities often exist between neighboring countries. Standardization of policies, tools, or procedures among countries with similar epidemiological profiles can increase response effectiveness.

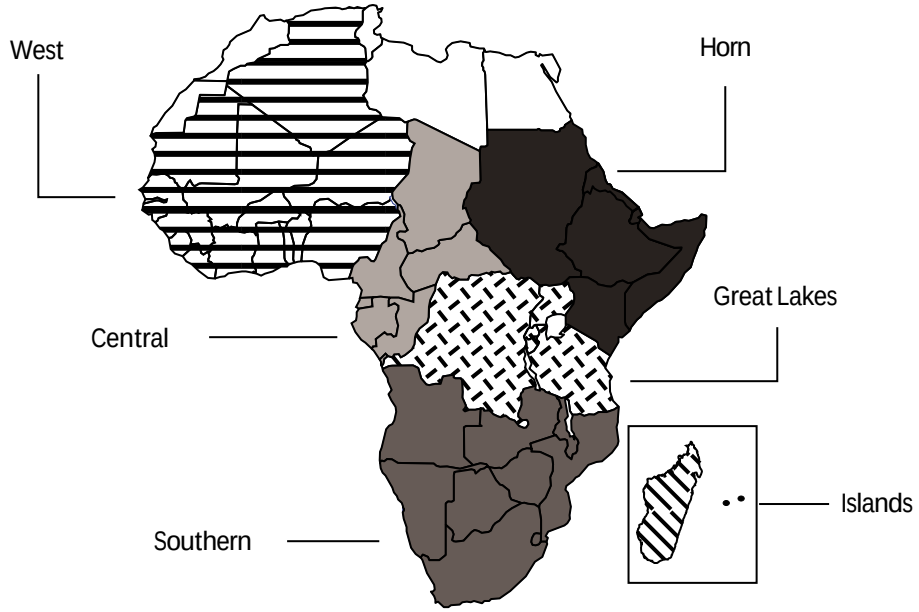
- Epidemics can quickly spread across borders, and prompt exchange of information from one country to the other can increase the timeliness and effectiveness of interventions. A sub-regional organization specialized in epidemic preparedness and response can facilitate these exchanges of information.

- Epidemic preparedness and response sometimes requires specific expertise (laboratory; epidemiology) or supplies (yellow fever and meningitis vaccines; second line antibiotics) that cannot be managed effectively by individual countries. The availability of such specialized expertise and supplies at the sub-regional level makes them more readily accessible to countries in need.

Many countries lack drugs and other supplies for prompt and effective interventions. Many country officials lack both awareness of the risk of epidemics and the capacity to effectively detect and manage them. This is particularly true in countries in political or natural distress where the lack of basic infrastructure makes it difficult to build this capacity. A specialized sub-regional organization can provide rapid technical assistance and organize effective relief to the population of such countries.

To take advantage of these opportunities to strengthen the capacity for epidemic preparedness and response in the Africa region, WHO/AFRO defined five groups of countries with similar epidemiological profiles, and created a political framework to facilitate inter-country collaboration within each of these epidemiological blocks. Member states agreed on priority diseases for interventions and on a plan of action, and mandated WHO/AFRO to establish technical support teams (hereinafter, the EMC teams) in each epidemiological block. **Table A** presents the individual countries, their total population, the major epidemic-prone diseases under consideration, and specific aspects of the protocols of cooperation in each epidemiological block.

Figure 1. AFRO/EMC Epidemiological Blocks



In West Africa, a team of epidemiologists was first established in late 1995 to strengthen the capacity of countries at risk of meningitis to detect and respond to future outbreaks. The protocol of collaboration later established in 1996 between 18 member states extended the scope of this inter-country team to include cholera, yellow fever, measles, and viral hemorrhagic fevers. The inter-country team was formally established following the signing of the cooperation protocol. With support from USAID, CDC, SDR, EU, and Epicentre, the EMC team in the West Africa epidemiological block (WAB) began full-scale activities in 1997. The EMC team in the Great Lakes epidemiological block (GLB), established primarily on the basis of dramatic epidemics of cholera and dysentery that occurred

Table A. Composition and Characteristics of the Five EMC Epidemiological Blocks

Epidemiological Block	Countries	Epidemic-prone Diseases Included	Protocol of Cooperation
West Africa 17 countries Total population: 256 million	Algeria, Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo	Cholera, Meningitis, Yellow Fever, Measles, Shigellosis, VHF	Signed October 1996.
Great Lakes 5 countries Total population: 112 million	Burundi, D. R. Congo, Rwanda, Tanzania, Uganda	Cholera, Meningitis, Yellow Fever, Shigellosis, Measles, Malaria, VHF, Plague, HIV/AIDS, Poliomyelitis, Typhus	Signed August 1997. Includes Polio Eradication
Horn of Africa 6 countries Total population: 90 million	Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan	Cholera, Meningitis, Measles, Plague, Leishmaniosis	Signed 1998.
Central Africa 9 countries Total population: 83 million	Angola, Cameroon, CAR, Chad, Congo, D.R. Congo, Equatorial Guinea, Gabon, Sao Tome & Principe	Cholera, Meningitis, VHF, Yellow Fever, Shigellosis, Trypanosomiasis, Monkeypox	Signed July 1998. Includes Polio Eradication.
Southern Africa 14 countries Total population: 122 million	Angola, Botswana, Comoros, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Zambia, Zimbabwe	Cholera, Meningitis, Malaria, Shigellosis, Plague, Rabies, Anthrax, VHF, Influenza, Dengue	Signed June 1999. Includes Polio Eradication. Reflects IDS.

in the region in 1994 and thereafter, began its activities in 1998. The EMC inter-country teams were established in the central Africa and the Horn of Africa epidemiological blocks in 1998, and in southern Africa in 1999.

D. Performance of West Africa and Great Lakes EMC Teams

This section discusses the performance and results of the WAB and GLB teams. It provides a useful overview of the program but has obvious limitations. The analysis of the activities conducted by country does not necessarily give an accurate picture of the coverage and potential impact of the program because population size varies widely. For example, one training-of-trainers workshop would not have the same impact on health services preparedness in Nigeria as in Togo.

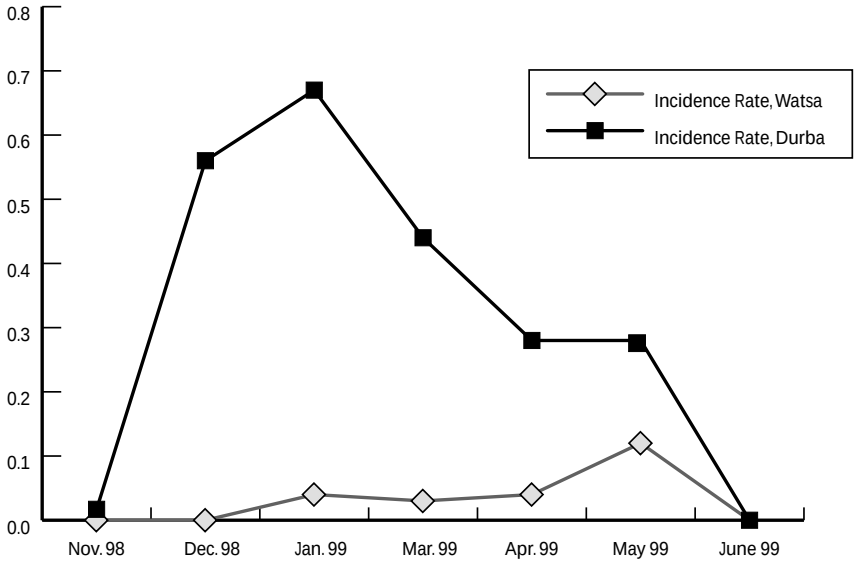
Most of the illustrative results at the country level come from observations made by the reviewers during their site visits in Guinea and Uganda; others come from the various reports and documents collected during their mission. These specific examples are clearly identified[1] from the remaining text to highlight the fact that they may not necessarily be representative of EMC programs in other countries.

1. Epidemiological surveillance

Training of health workers was one of the first activities that the WAB and GLB teams undertook. The training covered epidemiological surveillance and management of epidemics at the district level. The WAB and GLB teams estimate that 11 of 17 countries in the WAB and all countries in the GLB had trained at least one staff member in at least 50% of the districts by the end of 1999. In seven of 21 countries in the WAB and GLB, the staff trained has been supervised either by EMC team members or by their MOH counterparts. There is still a large demand and need for EPR training.

Result: In Guinea, a national training plan was developed following the Ouagadougou meeting in 1996 to train up to 1,200 persons, primarily at the district and health center level. So far, a total of 197 people have been trained in 30% of the districts in Guinea. Staff at the health center and district levels is trained in the detection and confirmation of cases of epidemic-prone diseases and is able to begin response to confirmed outbreaks. They report on specific diseases on a weekly basis from health centers upwards. At the national level, the Division of Prevention and Control, which manages the Epidemiological Surveillance and Early Warning System separately from the remainder of the health information system, only uses the data to confirm, record, and report trends.

Figure 2. Monthly Incidence Rate of Hemorragic Fever in Durba and Watsa, D.R. Congo, Nov. 1998 - June 1999



[1] Each of these examples is prompted as **Result**.

Result: In Uganda, all districts and 50% of the health centers have been trained in EPR. In addition, five districts are followed up on a monthly basis. The MOH considers that this follow-up has led to a major improvement in the detection and response capacity of these districts.

2. Communication

One of the main results of the presence of an active team of experts in epidemic preparedness and response at the sub-regional levels is to improve communication and the exchange of information between countries, and between countries and AFRO. This has been achieved through several mechanisms:

- follow-up and feedback through the notification reporting systems;
- informal communication through e-mail, phone, fax, web site, country visits, meetings, etc.;
- technical assistance visits (assessment, planning, outbreak investigations and evaluation, etc.);
- inter-country and cross border meetings;
- provision of computers and Internet and e-mail access to the Disease Control and Prevention Officer (DCP) in the WHO offices and sometimes their counterparts in the MOH.

Result: Epidemiological bulletins were published and disseminated at the sub-regional and regional levels. These bulletins cover EPR and IDS and epidemiological information from other DDC programs. They are very promising mechanisms for sharing information and experiences among professionals within and between countries. However, the preparation requires time from data managers, epidemiologists, writers, and publication specialists to ensure regular and timely dissemination of quality information.

Accurate and timely communication is also needed within countries between the community, health centers, district management teams, and the provincial and national levels. The EMC teams have conducted assessments of the communication systems in four of the 17 countries in the WAB and in all the countries of the GLB. These assessments primarily aim to identify the needs for basic equipment and related training in the most remote areas at high risk of epidemics.

Both EPR training and improvements in communication systems have resulted in better notification of diseases under surveillance. At the time of this review, 11 countries in WAB and all four countries in GLB regularly send their weekly epidemiological report to AFRO, 11 of them by e-mail.

3. Development of IDS plans

The adoption and the process of implementation of the Integrated Disease Surveillance strategy in the Africa region was discussed earlier in this report. The IDS strategy is very well accepted by the country counterparts of the EMC teams in the WAB and GLB. Once adopted by a country, the usual process is the preparation of an initial standardized assessment followed about two months later by the development of a plan of action. The initial assessment and the preparation of a plan of action have been completed in two countries,

Credit: WHO/TDR/Crump

Tanzania and Uganda. The IDS assessment has been conducted in additional countries including Burkina Faso, D.R. Congo, Ghana, Mali, and Rwanda.

Result: In Uganda, the IDS assessment was done in March and the five-year plan of action developed in May 2000. The broad involvement of the MOH and the support of the Institute of Public Health, CDC, and WHO made this a landmark event in public health in Uganda. An IDS committee is now in place and ten districts have already been trained in the new surveillance system.

4. Development of regional and sub-regional databases

The detection and confirmation of outbreaks must be done at the district level. The main reason for collecting notification data at the regional and sub-regional levels is to establish trends and to monitor the quality of the reporting system and the responses to epidemics. The most complete country-specific data appears to be for cholera and meningitis reported on a weekly basis. The numbers of cases and deaths are available by district from 1998 for meningitis and 1999 for cholera.

These notification data used to be sent directly to AFRO by each country, processed by the director of the EMC program, and sent to WHO/HQ. In the last year and a half, there has been a data manager at DDC and data managers (often funded by the Polio Eradication Program) covering each epidemiological block (the GLB is covered by the data manager of the East Africa EPI ICP team).

The IDS program is using the EPI 2000 software to develop regional, sub-regional, and country databases that include components for EPI, laboratory, and surveillance data. The 19 IDS diseases will be entered by district on a monthly basis and on a weekly basis in case of epidemic. It is difficult to know when this new software will be available at the various levels of the surveillance system, from the district to the DDC levels.

A wealth of information on epidemics and responses can be found in the various short-term technical professional (STP) and other regional, sub-regional, and country reports. More systematic analysis of this type of information would allow for the establishment of trends in the number, duration, or any other characteristics of outbreaks.

5. Laboratory strengthening

Over the last few years, the WAB and GLB teams have conducted assessments of the laboratory capacity in all countries of their epidemiological blocks. These assessments typically lead to the development of an action plan and specific recommendations for equipment and supply. Eleven countries in WAB and one in GLB received some reagents and transport media on an ad hoc basis, but these have not met their demand.

Result: In Uganda, WHO and AMREF have assisted the Ministry of Health (MOH) in developing a strategy to establish a national laboratory network and quality control mechanisms. The WHO office proposed to fund a national coordinator for two years to coordinate a large multidisciplinary team within the MOH, and then commit further support to this activity.

Result: In the WAB, biologists of national reference laboratories from eight countries received training from the EMC team. The laboratory technicians have subsequently been trained in ten countries in the WAB, and supervised in three countries. During the cholera epidemic in 1994 in Guinea, all specimens were sent to Europe to confirm the epidemic. After the training of laboratory technicians in 1997, the laboratory confirmation of the 1998 and 1999 cholera outbreaks were done in-country and in a timely manner.

Credit: WHO/TDR/Crump

6. National preparedness and response capacity

The development of a national plan for EPR, establishing security stocks of drugs and supplies, and dedicating an EPR line item in the MOH budget are among key indicators to assess the epidemic preparedness and response capacity of a country. Many MOHs have budget lines dedicated to EPR and other emergencies, but they are usually for drugs or supplies rather than costs that must be covered in a timely manner for effective responses (transportation, per diem, social mobilization, etc.). Also, a budget line may exist and contain appropriate funds but not be accessible when needed. It is expected that as the EMC teams become more involved in IDS assessments and planning, the development of EPR plans will be addressed through this program.

Result: In Uganda, EPR is an important component of the Health Sector Strategy, in which $500,000 is earmarked for both EPR and IDS activities. Additional emergency funds are included for logistics and supplies for emergency interventions in case of an outbreak. Overall, ten districts around Kampala have achieved a satis-

factory level of preparedness because of the creation of Epidemic Surveillance Units in 1999 after the cholera outbreak. However, ten other districts near conflict zones are still left behind while the remaining districts lie at intermediate levels of epidemic preparedness.

7. Outbreak investigation and evaluation

The WAB team provided technical assistance for the investigation of 13 outbreaks of five epidemic-prone diseases in seven countries from 1996 to 1999. The diseases most frequently investigated were cholera, meningitis, and dysentery. The GLB team conducted seven outbreak investigations of six diseases in five countries (one investigation was conducted in Eastern Congo).

Result: The WAB team provided technical assistance for the evaluation of the response and management of four outbreaks of cholera and three outbreaks of meningitis, and the GLB for the evaluation of two outbreaks of cholera and one of malaria.

8. Provision of EPR drugs, vaccines, and other supplies

The provision of drugs, vaccines, and other supplies in case of emergency is one of the functions of the epidemiological blocks as defined in the protocols of cooperation. The WAB team was able to provide some EPR supplies to eight countries and the GLB team to two. The WAB team ordered and received EPR supplies in 1998, but there is no clear policy and management plan for regular renewal and maintenance of the regional and sub-regional stocks. On several occasions, the EMC teams have not been able to respond to specific requests from countries facing epidemics because they lack the necessary products. The failure to provide these commodities create frustration and disappointment within the teams and among the country counterparts.

Result: The WAB undertook a study of funding and management mechanisms of the emergency stocks in Burkina Faso and Mali.[2] Similar studies can be replicated elsewhere to develop guidelines for countries and sub-regional and regional levels of the program.

9. Resource mobilization

The WAB team has submitted projects to and made contacts with the Swiss Disaster Relief, the African Development Bank (through WHO Representatives), the Economic and Monetary Union of West Africa, the European Union (through Epicentre), and the International Red Cross Federation. These efforts have not been followed by any substantial funding so far.

E. Recent Trends in Epidemic Outbreaks

Given the multitude of activities of the EMC and IDS programs in the Africa region, it is reasonable to expect a decrease in the reported morbidity and mortality from epidemic-prone diseases in the long run. Specifically, given the focus of these programs on epidemic preparedness and response, such decrease would result primarily from a reduction in the duration, attack rate, and case-fatality of outbreaks of the targeted diseases. The present

[2] Tchicaya, Anastase. *La Sécurisation des fonds "Epidémies" dans les pays d'Afrique de l'Ouest: Les experiences du Burkina Faso et du Mali.* Epicentre, 1999.

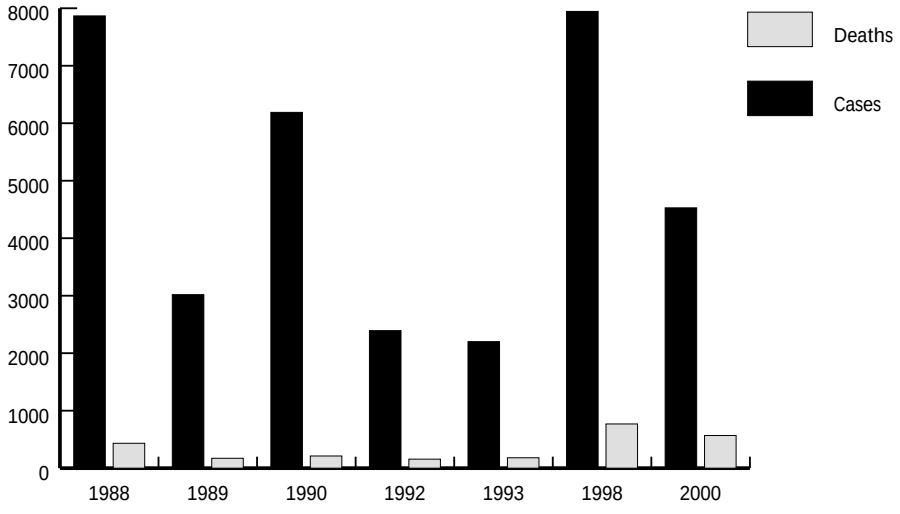
review was not intended to provide impact evaluation information, but its broad scope has elicited the authors to develop the following comments in that direction.

The reviewers identified monitoring data on cholera and meningitis available at the DDC and HQ levels, and performed analyses to assess their quality and potential use in assessing trends. The DDC data were received in the form of various spreadsheets structured and formatted for visual examination. The DDC only has data for a few years after the move from Brazzaville in 1996. The HQ data were downloaded from the WHO/EMC web site[3] as part of the Report on Global Surveillance of Epidemic-prone Infectious Diseases (WHO/CDS/CSR/ISR/2000.1), also in spreadsheet formats. All the analyses and graphs were done with Excel. Some of the preliminary findings are presented below without discussion or conclusions.

Data on meningitis The HQ data covers the period 1966 to 1999 and includes the annual number of cases by country, but not the deaths. Four out of the 18 countries in WAB reported 86% of the cases from 1995 to 1999. Different countries reported the bulk of the cases each year. The DDC data includes the annual number of cases and some data on the number of deaths by country. There are some discrepancies of various magnitudes in the number of cases in the HQ data. Except for an outstanding peak in the number of cases in 1996, primarily due to Nigeria, no clear trends appear in the last two decades.

African countries have continued to experience outbreaks of meningitis in the last two years. When taking population numbers into account, the countries that were most affected in 1999 by epidemics of meningococcal disease were Burkina Faso, Cameroon, Central African Republic, Guinea Bissau, Niger, Senegal, and Chad. While the duration of meningitis outbreaks for several countries in the "meningitis belt" of Africa has decreased, case fatality rates (CFRs) are holding steady at 13%. The goal is to achieve a CFR of less

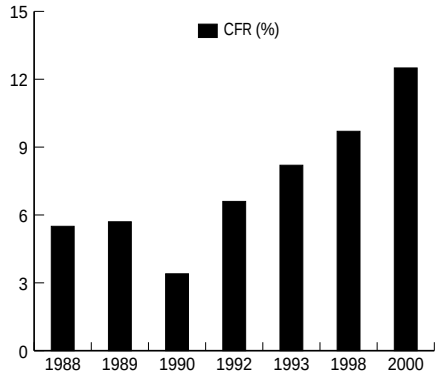
Figure 3. Meningitis Cases and Deaths in Chad During Epidemic Years, 1988-2000*



*Source: MOH/Chad, WHO/AFRO, and American Embassy, Ndjamena; Year 2000 data is only through week 13.

[3] http://www.who.int/emc/surveill

Figure 4. Meningitis Case Fatality Rates (CFR) in Chad During Epidemic Years, 1988-2000*



CFRs in severely affected districts, as of 13th week of the year 2000:

– Lai:	**9.0%**
– Benoye:	**7.5%**
– Moundou:	**13.8%**
– Dessao:	**19%**
– Doba:	**20.1%**

*Source: MoH/Chad, WHO/AFRO, and American Embassy, Ndjamena; the CFR is the number of meningitis deaths divided by the number of meningitis cases, expressed as a percent. Year 2000 data is only through week 13.

than 10% by the year 2002. Among countries that experienced meningococcal outbreaks in 1999, CFRs ranged from 9.2% in Senegal to 31% in Central African Republic. It is worth mentioning that Senegal is in the West Africa Block where countries have made more progress than those in the Central African Block.

Data on cholera The HQ data for Africa as a whole show an increasing trend in the total number of cases from 1980 to 1998, and a decreasing trend in case fatality rate. Both observations can be explained at least partially by an increase in reporting. The data on deaths from cholera are not available by country. In WAB, nine out of the 18 countries reported 86% of the cases from 1994 to 1998. In GLB, two countries (Tanzania and Uganda) reported 92% of the cases from 1994 to 1998 (this analysis did not include the huge epidemic in eastern D.R. Congo in 1994). In each block, different countries report the bulk of the cases each year. AFRO data from 1997 to 1999 for the ten most affected countries in WAB and data from 1998 and 1999 for GLB show on average no decrease in case fatality. Finally, weekly data on cases are available in 1999 and 2000 for five countries only and show clear outbreaks in Nigeria and Ghana in 1999.

F. Conclusion and Recommendations

The WHO/AFRO epidemiological block approach is an effective mechanism for strengthening the capacity for epidemic preparedness and response in countries of the Africa region. The various protocols for cooperation signed by the Ministers of Health and of the Interior of the countries in each epidemiological block provide an essential political framework to implement the program. The development of stronger national disease surveillance systems through the new IDS program will allow the EPR program to focus on the specific aspects of preparedness and response to epidemic-prone diseases.

In their few years of operations, the EMC teams in WAB and GLB have provided valuable technical assistance to many countries in epidemic preparedness and response. There are results in terms of more timely and accurate information, existence of committees and

emergency units at central, regional, and district levels, and improved detection, confirmation, and management of epidemics.

At least partially as a result of the EMC program, there is an increasing awareness of the feasibility of better control of epidemic-prone diseases, and an increasing demand from member states for technical and financial support for EPR activities. African countries are at different stages of epidemic preparedness and response, and given the limited resources currently available for the EMC program and the high expectations from member states, WHO/AFRO needs to increase its advocacy, collaboration, and resource mobilization efforts.

With the understanding that various partners may support the implementation of the EMC program, the reviewers request that WHO/AFRO continue its technical leadership role in the region and engage in active resource mobilization for EPR by: 1) improving the contractual arrangements offered to EMC staff, especially by avoiding relying on successive 11-month contracts with long interruptions between contracts; 2) preparing a strong and specific five-year EPR strategic plan for the Africa region; 3) developing a resource mobilization plan and contacting additional partners and donors; and 4) assisting countries to improve specific aspects of the main EMC strategies, such as laboratory strengthening and better evaluation and documentation of outbreak responses.